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TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

July 21, 2010

TO: Internal File

THRU: Daron Haddock, Permit Supervisor and Team Lead *DH*

FROM: James Owen, Reclamation Engineer *JO*

RE: Winter Quarters Ventilation Facility, Canyon Fuel Company, LLC, Skyline Mine, C/007/0005, Task # 3549

SUMMARY:

On June 8, 2010, the Division received a re-submittal of the Winter Quarters Ventilation Facility Amendment from Canyon Fuel Company, LLC. The new submittal addresses the deficiencies that were identified from the previous submittal (3-23-10). The Winter Quarters Facility proposes to add approximately 7.93 acres to the permit area. The site is located approximately ½ mile west of the main historic Winter Quarters town site.

The ventilation facility will include 3 mine openings. These openings will be a 20-foot diameter vertical shaft, an 8-foot diameter escape shaft, and a 20-foot wide slope driven at 18 degrees down. When sealing at reclamation, the shafts will be completely backfilled. The slope will be filled with incombustible material for a distance of at least 25 feet into the opening.

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TECHNICAL ANALYSIS:

RECLAMATION PLAN

MINE OPENINGS

Regulatory Reference: 30 CFR Sec. 817.13, 817.14, 817.15; R645-301-513, -301-529, -301-551, -301-631, -301-748, -301-765, -301-748.

Analysis:

The previous submittal was not recommended for approval due to the following deficiency related to the reclamation of the mine openings:

- *Within the submittal, the applicant included a schematic cross section of the ventilation shaft as well as a schematic cross section of the mine slope. The schematic depicts the designs for shaft backfill. Neither of the cross sections (Figures 4.98, 4.9C) appears to have been certified by a qualified registered professional engineer, and there does not appear to be any drawings or cross sections of the escape shaft. There is not enough information provided in terms of maps, drawings, plans, cross sections, etc. of the shafts and slopes to be considered adequate. For purposes of completeness the applicant should provide a certified map (rather than just a schematic figure within the text) that includes all relevant details pertaining to both shafts and the slope. The map should be complete enough to be certified by a professional engineer. Depictions of the shaft should be split into sections or otherwise presented as to allow for the drawings to be scaled. The applicant stated, "Appropriate maps will be certified when the application is approved and clean copies are provided". The maps depicting the shafts and slope are not yet complete enough to warrant approval.*

Reclamation will include both shafts being sealed and backfilled with an engineered fill (pit run or reject fill). The bottom 55-feet of the shaft will be filled with non-combustible material as follows starting at the bottom of the shaft:

- 20 feet of large, course +6" rock (includes mine opening)
- 10 feet of 2" -4" rock
- 5 feet of gravel
- 5 feet of sand
- 5 feet of granular bentonite
- 5 feet of concrete
- 5 feet of granular bentonite

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The remainder of the shafts will then be backfilled above the pad surface with the excess fill. The fill process for the bottom 50 feet of the shafts has been designed to minimize the accumulation of gas and the filling of water in the shafts. The shaft reclamation design addresses mass stability and movement in multiple ways: grading saturation, bentonite-concrete are utilized as cap and seal to reduce possibility of saturation and mass movement, and overfill provides an addition 5% of or compaction and settling.

Findings:

In the new submittal, Figure 4.9B has been modified to include both a vent and escape shaft (separately). Figure 4.9C was modified to include height of entry. Both drawings have been scaled and dimensions were properly depicted. Details were provided in terms of fill layers, bentonite details, concrete details, drain pipe specs, wall dimensions, grout specs, bulkhead specs, overfill details, and seep specs within the concrete and bentonite zones. The drawings are adequate enough as to warrant PE certification. All drawing requiring PE certification will be certified when clean copies are submitted (at Conditional Approval).

RECOMMENDATIONS:

The amendment meets the engineering requirements of the Utah Coal Rules. Approval is recommended.